



Dart Hawkesbury
1270 Aberdeen St Hawkesbury, ON K6A 1K7 Canada
Tel (613) 632-5200
Fax 613 632-5246

Purchasing Receipts

PO No	Supplier	Line Item No	Rel No	Terms	Purchased Item	Description	For Part No	Project	Equipment ID	Order Qty	Due Date	Received Quantity	Accounting Job No	Container No	Status	Receive Date	Price/Unit	Aging Past Due Days	Total	Supplier Name
PO041480	MEC002-VU	3	1	Net 30	M6061T6R6.000	Round Bar 6.00" ; MATERIAL: 6061-T6/T651/T65107/T6511/T62 ALUMINUM ROUND BAR AS PER QQ-A-225/8 OR AMS-QQ-A-225/8 OR AMS 4117				12	11/9/2018	12		S126177	Stock	11/8/2018	\$ 89.22 / ft	0	\$1,070.64	Metaux Castle
		4			MT-1144-R4.500	AISI 1144 Stressproof Round Bar 4.500" ; MATERIAL: AISI 1144 STRESSPROOF STEEL ROUND BAR ASTM A311 or UNS G11440				6		6		S126178	Stock	11/8/2018	\$ 122.00 / ft	0	\$732.00	Metaux Castle
		6			MT-4140QT-R2.500	AISI 4140 Quenched & Tempered Steel Round Bar 2.500" Dia. ; AISI 4140 Q&T Round Bar ; MATL: AISI 4130 QUENCHED & TEMPERED ROUND BAR AS PER ASTM 4140 QT OR ASTM 4142 QT				12		12		S126179	Stock	11/8/2018	\$ 20.52 / ft	0	\$246.24	Metaux Castle
										Total:		30							\$2,048.88	



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO041480**

Supplier: MEC002-VU
Metaux Castle
P.O. Box 4090 Stn A
Toronto
ON
M5W OE9 Canada

PO No: PO041480

PO Date: 10/26/18

Due Date: 11/9/18

**Purchase Order
Revision:**

Revision Date:

Ship-To Contact: Lavoie, Chantal
clavoie@dartaero.com

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground

Pynt Terms: Net 30

Freight Terms:

Special Comments:

E-MAILED
OCT 26 2018

Items

Line Item	Job	Part	Supplier Part No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1 <i>AK</i>		M304R5.500		304 SS Round bar 5.500 cut to size: 10.625" : MATERIAL: AISI 304/316 SS ROUND BAR AS PER ASTM A276 NOTE: AISI 303 NOT ACCEPTABLE receive ft	Firmed	-	11/9/18	8.854 ft	0 ft 8.854 ft	9 ft	\$230.404333/ft	\$2,040.00
Line Item Note: NOTE 10 PCS CUT TO SIZE 10.625" = 8.854 FT												
2 <i>AK</i>		M6061T6R5.500		6061T6 Round Bar 5.500" Dia. : MATERIAL: 6061- T6/T651/T6510/T6511/T62 ALUMINUM ROUND BAR AS PER QQ-A-225/8 OR AMS-QQ-A-225/8 OR AMS 4117 4128/4115/4116 OR QQ- AA-200/8 OR AMS-QQ-A- 200/8 OR AMS 4160 OR ASTM B221 OR ASTM B221	Firmed	-	11/9/18	3 ft	0 ft 3.33 ft	3 ft	\$91.82/ft	\$275.46
3 <i>AK</i>		M6061T6R6.000		Round Bar 6.00" : MATERIAL: 6061- T6/T651/T6510/T6511/T62 ALUMINUM ROUND BAR AS PER QQ-A-225/8 OR AMS-QQ-A-225/8 OR AMS 4117 4128/4115/4116 OR QQ- AA-200/8 OR AMS-QQ-A- 200/8 OR AMS 4160 OR ASTM B221 OR ASTM B221 receive ft	Firmed	-	11/9/18	12 ft	0 ft 12 ft	12 ft	\$89.22/ft	\$1,070.64

Line Item Note: 2 PCS OF 6 FT



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO041480**

Items

Line Item	Job	Part	Supplier Part No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
4 ✓ AT		MT-1144-R4.500		AISI 1144 Stressproof Round Bar 4.500" : MATERIAL: AISI 1144 STRESSPROOF STEEL ROUND BAR ASTM A311 or UNS G11440	Firmed	-	11/9/18	6 ft	0 ft	6 ft	\$122.00/ft	\$732.00
								✓	6 ft	AT 18/11/08		
5 ✓ AT		MT-4140QT-R6.500		AISI 4140 Q&T Round Bar 6.500" Dia. MATERIAL : AISI 4140 QUENCHED & TEMPERED STEEL ROUND BAR ASTM 4140 QT or ASTM 4142 QT	Firmed	-	11/9/18	3 ft	0 ft	3 ft	\$119.25/ft	\$357.75
								✓	3 ft	AT 18/11/06		
6 ✓ AT		MT-4140QT-R2.500		AISI 4140 Quenched & Tempered Steel Round Bar 2.500" Dia. : AISI 4140 Q&T Round Bar : MAT'L: AISI 4130 QUENCHED & TEMPERED ROUND BAR AS PER ASTM 4140 QT OR ASTM 4142 QT	Firmed	-	11/9/18	12 ft	0 ft	12 ft	\$20.52/ft	\$246.24
								✓	12 ft	AT 18/11/09		
7 ✓ AT		M17-4-H1150-R1.500		17-4 SS Round Bar 1.500" : MATERIAL: 17-4 PH CONDITION H1150 MATERIAL: 17-4 PH / S I7400 / TYPE 630 SS ROUND BAR GRAIN MUST BE ALONG LENGTH OF BAR MINIMUM YIELD STRENGTH PER TABLE MINIMUM ULTIMATE STRENGTH PER TABLE SPECIFICATION: AMS 5643 OR ASTM A564 H1150 MIN. YIELD TENSILE 105 KSI / MIN. ULTIMATE TENSILE 135 KSI receive ft	Firmed	-	11/9/18	12 ft	0 ft	12 ft	\$28.45/ft	\$341.40
								✓	12.75 ft	AT 18/11/06		

Line Item Note MATERIAL: 17-4 PH / S I7400 / TYPE 630 SS ROUND BAR
GRAIN MUST BE ALONG LENGTH OF BAR
MINIMUM YIELD STRENGTH PER TABLE
MINIMUM ULTIMATE STRENGTH PER TABLE

SPEC'S AMS 5643 OR ASTM A564

Grand Total: \$5,063.49



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER PO041480

Order Notes

Procurement Quality Clauses

A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)
A026 certification of material conformance
A041 quality management system
A042 dart notification by supplier
A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 10/26/18 11:33 AM dart.lavoie.chantal

Chantal Lavoie

From: Desbiens, Marc <mdesbien@amcastle.com>
Sent: Monday, October 22, 2018 5:01 PM
To: Chantal Lavoie
Subject: RE: quote

Hi Chantal,

price and delivery on mat'l.

~~1010 sheet .125" x 32 sf Must regret, not available~~

~~1018 sheet 0.625" x 1 pcs of 4 ft x 4 ft Must regret, not available~~

~~1018 bar 0.625" x 10" x 4 ft Must regret, not available (we have 0.75" x 10")~~

~~1018 round bar 1.625" x 12 ft \$ 11.80 Ft 7-8 days~~

~~304 bar 0.750" x 1" x 12 ft Must regret, not available~~

~~304 bar 1" x 1.250" x 12 ft Must regret, not available~~

~~304 round bar 0.313" x 12 ft \$ 6.11 Ft 7-8 days~~

304 round bar 5.5" x 10 pcs cut at 10.625" \$ 204.00 piece 7-8 days 8.854 = 2040.00 \$ 236.404339pc.

~~303 round bar 0.500" x 36 ft \$ 3.51 Ft 7-8 days~~

~~303 round bar 1" x 24 ft \$ 9.14 Ft 7-8 days~~

~~303 round bar 0.750" x 24 ft \$ 6.41 Ft 7-8 days~~

~~303 bar 1" x 3" x 12 ft Must regret, not available~~

~~4130n round tubing 0.500" x .083" wall x 100 ft Must regret, not available~~

~~4130n round bar 0.250" x 12 ft Must regret, not available~~

~~6061t6 round bar 1" x 24 ft \$ 4.99 Ft 7-8 days~~

~~6061t6 round bar 1.125" x 24 ft \$ 5.28 Ft 7-8 days~~

~~6061t6 round bar 1.5" x 12 ft \$ 8.86 Ft 7-8 days~~

~~6061t6 round bar 5.5" x 3 ft \$ 91.82 Ft 7-8 days~~

~~6061t6 round bar 6" x 2 pcs cut at 6 ft \$ 89.22 Ft 7-8 days~~

~~6061t6 bar 0.875" x 2.250" x 12 ft Must regret, not available~~

~~6061t6 bar 1" x 3" x 12 ft Must regret, not available~~

~~6061t6 bar 1" x 3.625" x 6 ft Must regret, not available~~

~~6061t6 bar 1" x 6" x 36 ft Must regret, not available~~

~~6061t6 bar 2.375" x 7" x 4 ft Must regret, not available~~

~~6061t6 bar 2.5" x 1.5" x 12 ft Must regret, not available~~

~~6061t6 bar 0.625" x 0.625" x 12 ft Must regret, not available~~

~~6061t6 bar 2.5" x 2.5" x 6 ft Must regret, not available~~

~~6061t6 bar 0.750" x 0.125" x 60 ft Must regret, not available~~

~~6061t6 bar 1.5" x 2" x 12 ft Must regret, not available~~

~~6061t6 bar 1.5" x 2.5" x 24 ft Must regret, not available~~

~~6061t6 bar 2" x 2.250" x 12 ft Must regret, not available~~

~~6061t6 bar 2" x 3" x 12 ft Must regret, not available~~

~~6061t6 angle 1" x 1" x .125" wall x 20 ft Must regret, not available~~

1144 round bar 4.5" x 6 ft \$ 122.00 Ft 7-8 days

~~4140 bar 2" x 4" x 8 ft Must regret, not available~~

~~4140 bar 1.5" x 2.250" x 8 ft Must regret, not available (we have 1.50" x 2.50" annealed)~~

~~4140 sheet/plate 1.250" x 2.125" x 6 ft Must regret, not available~~

~~4140 sheet/plate 1.5" x 4" x 24 ft Must regret, not available~~

~~4140 qt round bar 0.875" x 12 ft \$ 8.38 Ft 7-8 days~~

4140 qt round bar 6.5" x 3 ft \$ 119.25 Ft 7-8 days

4140 qt round bar 2.5" x 12 ft \$ 20.52 Ft 7-8 days

~~4140 qt round bar 2.750" x 12 ft \$ 22.00 Ft 7-8 days~~

~~4140 qt round bar 4" x 4 ft \$ 66.15 Ft 7-8 days~~

~~Hrs round bar 6" x 2 ft Offer 1018 HR \$ 113.69 Ft 7-8 days~~

~~Hrs plate 0.625" x 1 pcs of 4 ft x 4 ft Must regret, not available~~

~~17-4 round bar 0.750" x 24 ft \$ 7.25 Ft 7-8 days~~

Thanks

Marc Desbiens

Inside sales representative

Castle Metals, Montreal, QC

Direct line 514-795-8176

1-800-806-6660 ext 52226

Fax # 1-855-892-6370

Customized Supply Chain Solutions for Your Metal Needs

This E-mail may contain proprietary information and may be confidential. You are to treat this material in accordance with your company's confidentiality policies and limit any distribution accordingly.

If you are not the intended recipient of this E-mail, you are hereby notified that any dissemination, distribution or copying of this message is strictly prohibited. If you received this message in error, please delete it immediately.

This e-mail message has been scanned by SEG Cloud

Chantal Lavoie

From: Desbiens, Marc <mdesbien@amcastle.com>
Sent: Monday, October 22, 2018 12:07 PM
To: Chantal Lavoie
Subject: RE: quote

Hi Chantal,

price on delivery on mat'l.

7075t6 plate 1" x 2.5" x 12 ft \$ 25.25 Ft 3 weeks

7075t6 plate 1" x 5" x 24 ft \$ 39.75 Ft 3 weeks

7075t6 plate 1" x 8" x 12 ft \$ 62.25 Ft 3 weeks

7075t6 plate 1.750" x 2.250" x 36 ft \$ 34.18 Ft late November

7075t6 plate 1.750" x 3" x 12 ft \$ 47.20 Ft late November

7075t6 plate 6" x 1" x 24 ft \$ 46.75 Ft 3 weeks

17-4 h1150- Round bar 1.5" x 8 ft Offer 12 ft \$ 28.45 Ft 10 days

4140 QT round bar 6.5" 3 ft \$ 119.25 Ft 3-4 days

Thanks

Marc Desbiens
Inside sales representative
Castle Metals, Montreal, QC
Direct line 514-795-8176
1-800-806-6660 ext 52226
Fax # 1-855-892-6370

Customized Supply Chain Solutions for Your Metal Needs

This E-mail may contain proprietary information and may be confidential. You are to treat this material in accordance with your company's confidentiality policies and limit any distribution accordingly.

If you are not the intended recipient of this E-mail, you are hereby notified that any dissemination, distribution or copying of this message is strictly prohibited. If you received this message in error, please delete it immediately.



Castle Metals®

PACKING SLIP/
CERTIFICATE OF CONFORMANCE

A. M. Castle & Co.


Page 1 of 1

Shipment No:3749011

Ship From: A. M. CASTLE & CO. 2150 ARGENTIA ROAD MISSISSAUGA, ON L5N 2K7 CAN		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CAN	Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA
Date Shipped 06-NOV-18	F.O.B. ORIGIN	Freight Terms Prepaid	Carrier MANITOULIN	BOL No 3749011-2

Shipment Details

Final Destination Branch - TOR

Order No 5301505	Line No 3	Item No 15471.MO	Description 6.0000.RD.6061.T6511.ALUMINUM.EXT.144.0000 - CUT IN HALF SPECIFICATIONS: AMS-QQ-A-200/8	
Purchase Order No 41480	Part Number	Ordered Qty 1.00 PCS	Invoice Qty 12.0000 FT	
Details ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #'S Email P/s and certs to: clavoie@dartaero.com END USER: DART AEROSPACE END USE: COMMERCIAL AIRCRAFT PARTS				
Delivery No. 122318944	Mill/Source	Heat Number  23332493	Mech Id 1	PCS 1
			Width (IN)	Length (IN)
				Shipped Qty(LBS) 399.0000

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment date. Material cut for credit.

Reviewed by Authorized Castle Metals Representative:

SUE KALOOS

Date: NOV 06 2018 Name:

Castle Metals

HEAT NUMBER: 23332493

MECHANICAL ID:

ITEM CODE: 15471

PO/LINE NUMBER: 483710

RECEIPT NUMBER:

SUPPLIER: HYDRO EXTRUSION

SPECIFICATION:

LCS: NO

COMMENT:

APPROVED: AMB



Hydro Extrusion USA, LLC
1550 KIRBY LANE
--
SPANISH FORK, UT
84660-1349

Certified Test Report

Cert Number	Page
HYDRO2950484	Page 1 of 3
Cert Creation Date	Cert Print Date
02-OCT-18	02-OCT-18

Sales Order Number	Line No.	Customer P.O.
1101428409	1	483710-1

Quantity Shipped	Date Shipped	Item Description	Specification
6004 LB	02-OCT-18	ACC-U-LINE Extruded ACC-U-ROD 6.000 DIA +/- .022	ASTMB221 REV 14 ASTMB221-13 REV AMS-QQ-A-200/8 REV A ASMESB221 REV 09 UNS#A96061 REV SAEJ454 REV Meets 6061-T6511H, 6061-T6511 REV
B/L	Item No.	SECT 515665 144.000 IN LN FIN M-MILL W-F 33251 F 1 CS 6	
Delivery Id	Item No. Rev	6061-T6511H Marking CONTINUOUS	
5040217	--		
Customer Part No.	15471		

Applicable Specifications, Revisions and Exceptions

Melted in the USA or qualifying countries

COMPOSITION NOTE: The values for 'Others Each' and 'Others Total' have met the limits as shown on this certified inspection report. Remainder is Aluminum.

Invoice To Customer

A M CASTLE & COMPANY
1420 KENSINGTON ROAD SUITE 220

OAK BROOK, IL - 60523

Ship To Customer

A M CASTLE & COMPANY
3800 ENTERPRISE DRIVE

JANESVILLE, WI - 53546

Hydro Extrusion USA, LLC hereby certifies that the metal shipped under this report has been tested in accordance with the identified ASTM and/or ASME specifications and the results of the chemical analysis and mechanical properties tests are within the acceptable ranges of these specifications. Any product warranty is governed by the Extrusion North America Standard Terms and Conditions of Sale posted at www.hydroextrusions.com/termsconditions.

Signature And Title

Steven Tanner
Quality Manager

02-OCT-18

Quantities per Lot / Packages

Package Number	Lot Number	Quantity	UOM	Weight	
				Gross	Net
G14-PKG2113693	23318866	3	PCS	1206	1200
G14-PKG2116874	23332493	3	PCS	1207	1201
G14-PKG2116875	23332493	3	PCS	1207	1201
G14-PKG2116876	23332493	3	PCS	1207	1201
G14-PKG2116877	23332493	3	PCS	1207	1201

Composition Limits



Hydro Extrusion USA, LLC
1550 KIRBY LANE
--
SPANISH FORK, UT
84660-1349

Certified Test Report

Sales Order Number	Line No.	Customer P O	Cert Number	Page
1101428409	1	483710-1	HYDRO2950484	2 of 3
			Cert Creation Date	Cert Print Date
			02-OCT-18	02-OCT-18

Alloy	Si		Fe		Cu		Mn		Mg		Cr		Zn	
	PCT (%)		PCT (%)		PCT (%)		PCT (%)		PCT (%)		PCT (%)		PCT (%)	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
6061	0.40	0.80	---	0.70	0.15	0.40	---	0.15	0.80	1.20	0.04	0.35	---	0.25
Alloy	Ti		Others Each		Others Total									
	PCT (%)		PCT (%)		PCT (%)									
	Min	Max	Min	Max	Min	Max								
6061	---	0.15	---	0.05	---	0.15								

Composition Results

Heat Cast	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Others Each	Others Total
S18090601	0.74	0.40	0.28	0.15	1.00	0.14	0.16	0.03	--	--
Heat Cast	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Others Each	Others Total
S18090602	0.78	0.49	0.38	0.12	0.90	0.14	0.14	0.03	--	--
Heat Cast	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Others Each	Others Total
S18092103	0.76	0.37	0.28	0.11	0.90	0.15	0.24	0.03	--	--
Heat Cast	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Others Each	Others Total
S18092301	0.74	0.43	0.29	0.12	0.94	0.15	0.07	0.03	--	--

Mechanical Property - Test Limits

Test Temper		Lot Number	# of Tests	UTS - L		TYS - L		EL 4D-Long	
				KSI		KSI		PCT	
				MIN Value		MAX Value		MIN Value	
T6511H		23318866	2	56.4	57.0	51.2	52.5	10.5	12.0



Hydro Extrusion USA, LLC
1550 KIRBY LANE
--
SPANISH FORK, UT
84660-1349

Certified Test Report

Sales Order Number	Line No.	Customer P O	Cert Number	Page
1101428409	1	483710-1	HYDRO2950484	3 of 3
			Cert Creation Date	Cert Print Date
			02-OCT-18	02-OCT-18

Test Type		UTS - L		TYS - L		EL 4D-Long		
T O M		KSI		KSI		PCT		
# of Tests								
Test Temper	Lot Number	# of Tests	MIN Value	MAX Value	MIN Value	MAX Value	MIN Value	MAX Value
T6511H	23332493	1	53.3	53.3	48.9	48.9	13.0	13.0

Cert Notes

Products manufactured with a T6511 temper also meet T6 temper requirements.

Yield strength has been determined by the 0.2% offset method

All mill finish alloys produced at Sapa Extrusions Inc comply with Directive 2011/65/EC (RoHS 2) with the exception of 6262 alloy

In accordance with EN 10204 Inspection Certificate Type 3.1

For U.S. Government sales: Items supplied are compliant with the Buy American Act, FAR 52.225-1, and DFARS 252.225-7001.

Melted and manufactured in the USA.

Mercury is not a normal contaminant in aluminum alloys and we do not knowingly use it in the manufacture of our goods.

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM ROUND BAR
 SPECIFICATION: QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
 OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
 OR ASTM B211 OR ASTM B221

PART NUMBER: M6061T6R/D,DDD
 | DIA.
 WHERE "D,DDD" = DIAMETER IN INCHES
 EG. 5/8" ROUND BAR = M6061T6R0.625

RELEASED
 2009-09-09
MP

B	RET. URMAT DWG. ADD B211 & B221 SPEC. (ZN D8-1).	CP	09.07.13
A	NEW ISSUE	DS	01.06.08
REV	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR			
APPROVED			
DE APPR			
DATE	09.07.13		

DART AEROSPACE LTD	
HAYMA SQUIRY, ONTARIO, CANADA	
DRAWING NO.	REV. B
M6061T6R	SHEET 1 OF 1
TITLE	SCALE
6061-T6 ROUND BAR	NTS
COPYRIGHT © 2009 BY DART AEROSPACE LTD.	

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M606176R6 000

PO / BATCH NO.: P0041480/S126177

DATE: 18/11/08

MATERIAL CERT REC'D: Yes

THICKNESS ORDERED: 6.000"

QUANTITY RECEIVED: 1254

THICKNESS RECEIVED: 6.000"

QUANTITY INSPECTED: 1254

SHEET SIZE ORDERED: —

QUANTITY REJECTED: 0

SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y (N)	
CORRECT FINISH	(Y) N	
CORROSION	Y (N)	
CORRECT GRAIN DIRECTION	(Y) N	
CORRECT MATERIAL PER M-DRAWING	(Y) N	ASTM B221
CORRECT THICKNESS	(Y) N	
PHOTO REQUIRED	Y (N)	
CORRECT REF # TO LINK CERT	(Y) N	MT: 23332493
CORRECT MATERIAL IDENTIFICATION	(Y) N	
CORRECT M# ON THE MATERIAL	(Y) N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y (N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y (N)	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>Ar</u>	SIGNED OFF BY: _____
DATE: <u>18/11/08</u>	DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

**Castle Metals®**

A. M. Castles & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE


Page 1 of 1

Shipment No:3749011

Ship From: A. M. CASTLE & CO. 2150 ARGENTIA ROAD MISSISSAUGA, ON L5N 2K7 CAN		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CAN	Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA
Date Shipped	F.O.B.	Freight Terms	Carrier	BOL No
06-NOV-18	ORIGIN	Prepaid	MANITOULIN	3749011-2

Shipment Details

Final Destination Branch - TOR

Order No	Line No	Item No	Description
5309766	1	1288.MO	4.5000.RD.1144.CARBON.CD.SR.A311 CLASS B.120.0000-146.0000 CUT TO 72 IN (+ .1250/- .0000 IN) - BAND SAW CUTTING SPECIFICATIONS: ASTM A311
Purchase Order No	Part Number	Ordered Qty	Invoice Qty
41480		1.00 PCS	6.0000 FT
Details	ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #'S Email P/s and certs to: clavoie@dartaero.com END USER: DART AEROSPACE END USE: COMMERCIAL AIRCRAFT PARTS		
Delivery No.	Mill/Source	Heat Number	Mech Id
122355995	NIAGARA LASALLE CORPORATION	 174952	1
		Width (IN)	Length (IN)
			324.4803
		Shipped Qty(LBS)	
			324.4803

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castles & Co. within 60 days of the shipment. The material is the property of A.M. Castles & Co. and will be returned to the customer at the customer's expense.

Reviewed by Authorized Castle Metals Representative:

NOV 06 2018

Date:

Name:

SUE KALOUS



Date Printed: 06-NOV-2018 03:16:25 PM



**NIAGARA
LASALLE**
CORPORATION

1412 150th Street
Hammond IN 46327-1799

CERTIFICATION

CERTIFICATE	Rev
H183903	2
DATE	01/10/18
PAGE	1

S CASTLE, A M & CO. INC(30)
H CANADA, INC.
I 2150 ARGENTTIA ROAD
P MISSISSAUGA ONT L5N 2K7
T CANADA
O

PURCHASE ORDER 38111

ORDER 946612-1

CUSTOMER ITEM 1288

ITEM 114500132SP4

GRADE **STRESSPROOF(R)**

SHAPE Round

SIZE 4.5000

SIZE MM 114.3000 MM

LENGTH 11' 0"/12' 6"

LENGTH MM 3352.8 / 3810

STRESSPROOF(R) Spec/Rev: Spec/Rev: ASTM A108-13 Spec/Rev: ASTM A29/A29M-15 Spec/Rev: **ASTM A311-04(2010)** CLASS B

HEAT		GRAIN PRACTICE		SOURCE / MELTED			CAST		REDUCTION RATIO		DI
A174952		COARSE		STEEL DYNAMICS (USA)			BLOOM		7.9:1		2.39
CHEMISTRY											
C	MN	P	S	SI	NI	CR	MO	CU	AL	V	
0.450	1.400	.005	.300	0.250	0.080	0.110	.040	.140	.001	.004	
N		TE		AS		PB		SE		BI	
.011		N/A		N/A		.004		N/A		.0011	
										.0010	
MECHANICAL											
JOB		TENSILE		.2% YIELD		ELONG		R OF A		HARDNESS	
HS46253		127,306 PSI		115,022 PSI		10.20		26.70		HBN = 255	
LOT											
LOT		JOB		WEIGHT (LBS)		PIECES		LOT		JOB	
5585400		HS46253		3,950		6					

NAFTA COUNTRY OF ORIGIN = USA COLD FINISHED IN USA



WE, hereby certify that these goods were produced in compliance with all applicable requirements of sections 6, 7, and 12 of the Fair Labor Standards Act, as amended, and all regulations and orders of the United States Department of Labor issued under section 14 thereof. Material was not exposed to mercury or any metal alloy that is liquid at ambient temperature during processing or while in our possession. No weld repairs performed on the above material.

CERTIFICATE OF TEST

By:

Walter P. Kretzler

Walter P. Kretzler - Director of Q.A./Chief Metallurgist

8 7 6 5 4 3 2 1

REV	DESCRIPTION	DATE	BY	APPROVED
A	NEW ISSUE	17.08.09	WM	WM

WM
24.7.09.12

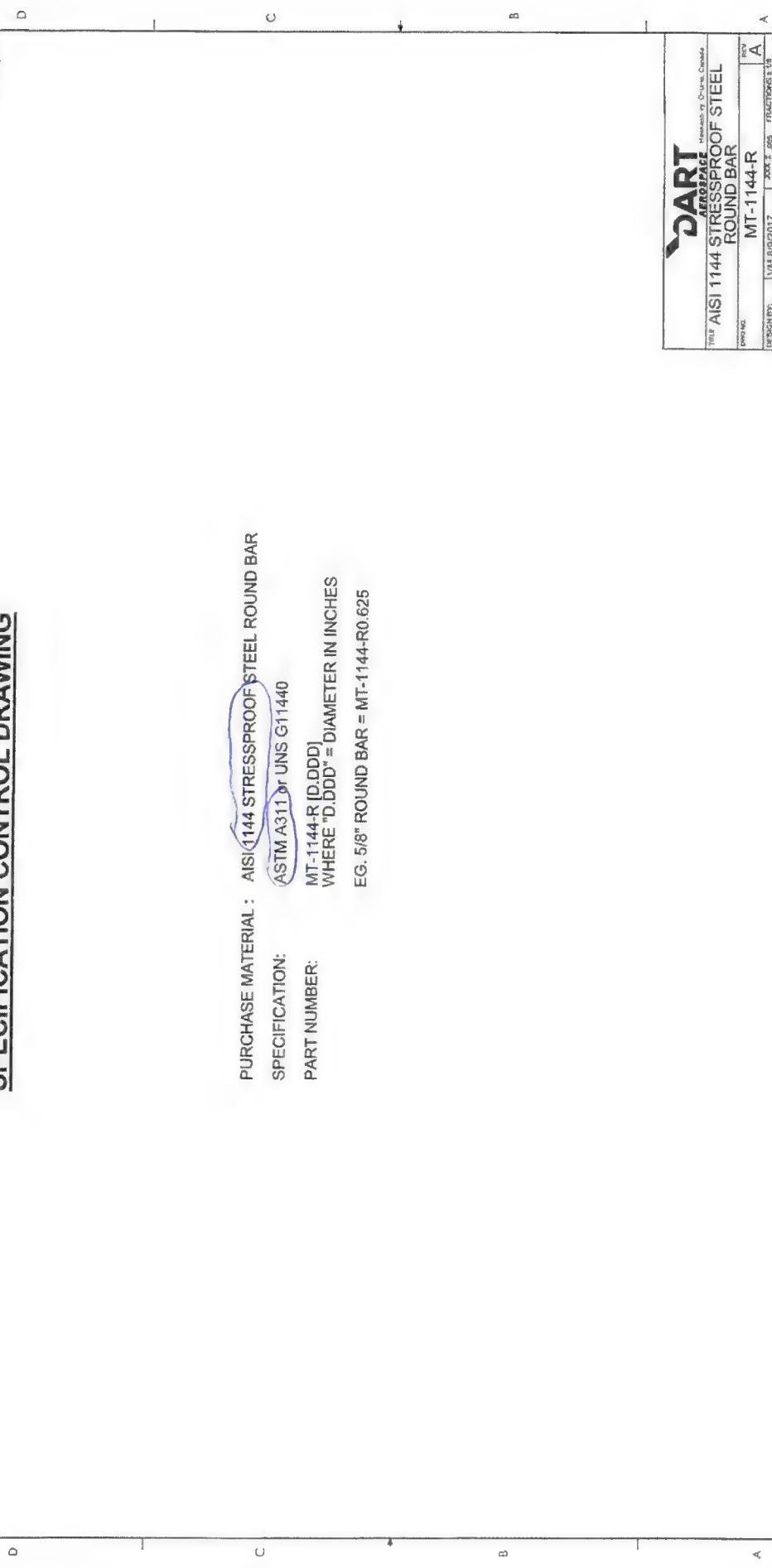
SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL : AISI 1144 STRESSPROOF STEEL ROUND BAR
SPECIFICATION: ASTM A311 or UNS G11440
PART NUMBER: MT-1144-R (D.DDD)
WHERE "D.DDD" = DIAMETER IN INCHES
EG. 5/8" ROUND BAR = MT-1144-R0.625

DART
AEROSPACE

Hemel Hempstead, UK
Hemel Hempstead, Ontario, Canada

TITLE		AISI 1144 STRESSPROOF STEEL ROUND BAR	
PART NO		MT-1144-R	
DESIGN BY	DATE	SCALE	UNIT
WM 08/05/2017	17.08.09	1:1	INCHES
CHECKED	DATE	SCALE	UNIT
WM 08/05/2017	17.08.09	1:1	INCHES
INSTR. APPR.	DATE	SCALE	UNIT
WM 08/05/2017	17.08.09	1:1	INCHES
APPROVED	DATE	SCALE	UNIT
WM 08/05/2017	17.08.09	1:1	INCHES
DATE: 08/05/2017 SCALE: 1:1 SHEET 1 OF 1			
COPYRIGHT © 2013 BY DART AEROSPACE LTD			
THIS DOCUMENT IS UNCLASSIFIED AND IS NOT TO BE RELEASED TO THE PUBLIC WITHOUT THE WRITTEN PERMISSION OF DART AEROSPACE LTD			



MATERIAL RECEIPT INSPECTION FORM

MATERIAL: MT-114-K4.500
 DATE: 18/11/08

PO / BATCH NO.: P0041480 / 526178

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 6ft
 QUANTITY INSPECTED: 6ft
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 4.500"
 THICKNESS RECEIVED: 4.500"
 SHEET SIZE ORDERED: -
 SHEET SIZE RECEIVED: -

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	(N)	
CORRECT FINISH	(Y)	N	
CORROSION	Y	(N)	
CORRECT GRAIN DIRECTION	(Y)	N	
CORRECT MATERIAL PER M-DRAWING	(Y)	N	ASTM A311
CORRECT THICKNESS	(Y)	N	
PHOTO REQUIRED	Y	(N)	
CORRECT REF # TO LINK CERT	(Y)	N	LI: 4174452
CORRECT MATERIAL IDENTIFICATION	(Y)	N	
CORRECT M# ON THE MATERIAL	(Y)	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	(N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	(N)	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
TYPE OF MATERIAL SIZE OF TEST SAMPLE HARDNESS / DUROMETER READING	HRC	HRB	DUR A	DUR D	WEBSTER

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>AT</u> DATE: <u>18/11/08</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

**Castle Metals®**

A. M. Castle & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE


Page 1 of 1

Shipment No:3749011

Ship From: A. M. CASTLE & CO. 2150 ARGENTIA ROAD MISSISSAUGA, ON L5N 2K7 CAN		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CAN	Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA
Date Shipped 06-NOV-18	F.O.B. ORIGIN	Freight Terms Prepaid	Carrier MANITOU LIN	BOL No 3749011-2

Shipment Details

Final Destination Branch - TOR

Order No 5301505	Line No 6	Item No 13774.MO	Description 2.5000.RD.4140.ALLOY.HR.Q & T.SR/SF.A193-B7.216.0000-288.0000 CUT TO 144 IN (+ .1250/- .0000 IN) - BAND SAW CUTTING SPECIFICATIONS: ASME SA193 B7,ASTM A29,ASTM A304,ASTM A322,ASTM A434,UNS G41400,ASTM A193	
Purchase Order No 41480	Part Number	Ordered Qty 1.00 PCS	Invoice Qty 12.0000 FT	
Details ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #'S Email P/s and certs to: clavoie@dartaero.com END USER: DART AEROSPACE END USE: COMMERCIAL AIRCRAFT PARTS				
Delivery No. 122318944	Mill/Source	Heat Number  H1042	Mech Id 1	PCS 1
			Width (IN)	Length (IN)
				Shipped Qty(LBS) 203.7559

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material not conforming to specifications may be returned for credit.

Reviewed by Authorized Castle Metals Representative:

NOV 06 2018

Name:

SUE KALOUS

Date Printed: 06-NOV-2018 03:16:25 PM

CERTIFICATE OF MATERIAL TEST REPORTS

H-A Industries A Division of A. M. Castle & Co. 4527 Columbia Avenue Hammond, IN 46327						Customer: A. M. Castle & Co. 1420 Kensington Road Suite 220 Oak Brook, IL 60523																	
MANUFACTURER (MILL)				CUST. ORDER NO.																			
NUCOR STEEL NEBRASKA																							
IC	HEAT NO.	MECHANICAL ID	ORDER NO.	SHIP QUANTITY	DATE																		
13774	100794397	H1042	11873701	8440	30-AUG-18																		
DESCRIPTION OF MATERIAL																							
2.5000.RD.4140 ALLOY.HR.Q & T.SR/SF.A193-B7.216.0000-288.0000																							
CHEMICAL ANALYSIS %																							
C	MN	P	S	SI	CU	NI	CR	MO	AL														
.41	.92	.007	.028	.23	.12	.07	.99	.19	.030														
JOMINY HARDENABILITY Rc																							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	18	20	22	24	26	28	30	32
57	57	57	57	57	57	57	55	54	53		50		49		47	46	46		43		41		39
METALLURGICAL																							
MACROETCH				NAFTA		GRAIN SIZE																	
S: 1 R: 1 C: 3				YES		5																	
CONTINUOUS CAST		REDUCTION RATIO		FROM IC																			
YES		8.9		14191																			
COUNTRY OF MANUFACTURE		COUNTRY OF MELT																					
United States		US																					
HEAT TREATMENT																							
AUSTENITIZE MINUTES		AUSTENITIZE TEMP °F		TEMPER MINUTES		TEMPER TEMP °F		WATER QUENCH TEMP															
65		1550		62		1220		80															
HARDNESS						MECHANICAL																	
Location	Type		Location	Type		Location	Tensile PSI	Yield .2% PSI	ELONG 2" %	R.A. %													
SURF	HBW	297	MID	HBW	309	MID	140475	117246	20.5	60.6													
SURF	HBW	320				MID	141572	117761	20.1	59.8													
MID	HBW	289																					
CONFORMANT TO SPECIFICATIONS																							
ASTM A29-16 ASTM A193-17 GR B7 ASTM A322-13 ASTM A304-16 ASTM A434-17 CLASS BC ASTM A962-17 ASME SA193-17 ED B7 EN 10204:2004 TYPE 3.1 HA IND. QUALITY MANUAL ISO 9001:2015 ISSUE 1 REV. 1 12/8/17																							

H-A INDUSTRIES CERTIFIES THAT APPROPRIATE INFORMATION IS TAKEN FROM TEST REPORTS FURNISHED TO US BY OUR SUPPLIER AND WHICH ARE ON FILE IN OUR OFFICE. H-A INDUSTRIES CERTIFIES THAT THE MATERIAL LISTED HEREIN HAS BEEN INSPECTED AND TESTED IN ACCORDANCE WITH METHODS PRESCRIBED IN THE GOVERNING SPECIFICATIONS. THE RESULTS OF INSPECTION AND TESTING CONFORM TO THE SPECIFICATIONS LISTED INCLUDING ASTM A370 LATEST REVISION AND EN 10204:2004 3.1

H-A CERTIFIES THAT THE METAL WHICH IS THE SUBJECT OF THIS CERTIFICATION IS MERCURY FREE AND WAS NOT EXPOSED TO ANY RADIOACTIVE SOURCE.MATERIAL DOES NOT CONTAIN ANY POLYBROMINATED BIPHENYLS (PBB) OR POLYBROMINATED DIPHENYL ETHERS (PBDE). NO WELD OR WELD REPAIR WAS PERFORMED ON THIS MATERIAL.

THE RECORDING OF FALSE, FICTITIOUS OR FRAUDULENT STATEMENTS OR ENTRIES ON THIS DOCUMENT MAY BE PUNISHABLE AS A FELONY UNDER FEDERAL STATUTE

NAME: JAN L. CARUSO

TITLE: MANAGER OF TECHNICAL SERVICES

SIGNATURE: *Jan L. Caruso*

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL : AISI 4140/ ROUND BAR
MINIMUM ROCKWELL C = 20 Rc
MAXIMUM ROCKWELL C = 38 Rc

SPECIFICATION: ASTM A29, AMS 6349, AMS 6382, AMS 6529

PART NUMBER: MT-4140-R-[D.DDD]
WHERE "D.DDD" = DIAMETER IN INCHES
EX. 4" ROUND BAR = MT-4140-R-4.000

REV.	DESCRIPTION	ECN #	DATE	BY	APPROVED
A	NEW ISSUE	17-780	17.12.13	VM	ML

DART AEROSPACE		Newmarket, Ontario, Canada	
TITLE AISI 4140 ROUND BAR			
PART NO.	MT-4140-R	REV.	A
TOOL NO.			
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES DIMENSIONS IN PARENTHESES ARE METRIC EQUIVALENTS DIMENSIONS APPLY AFTER FINISHING			
DESIGNED BY:	INTL AND DATE	TOLERANCES:	
DRAWN BY:	VM 1/11/13	FRACTIONS ± 1/8	
CHECKED BY:	VM 12/13/2017	DECIMALS ± .005	
WFO REVIEW BY:	ML 12/19/2017	ANGLES ± .5°	
APPROVED BY:	ML 12/20/2017	SURFACE ROUGHNESS	
COPYRIGHT © 2017 BY DART AEROSPACE LTD.		SCALE: NTS	
THIS DRAWING IS THE PROPERTY OF DART AEROSPACE LTD. IT IS TO BE USED FOR THE MANUFACTURE OF THE PARTS SPECIFIED HEREON ONLY. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.		SHEET 1 OF 1	

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: MT-4140QT-2.500
 DATE: 18/11/08

PO / BATCH NO.: P0041480/5126174

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 1254
 QUANTITY INSPECTED: 1254
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 2.500"
 THICKNESS RECEIVED: 2.500"
 SHEET SIZE ORDERED: —
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y <input checked="" type="checkbox"/> N	
CORRECT FINISH	<input checked="" type="checkbox"/> Y N	
CORROSION	Y <input checked="" type="checkbox"/> N	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/> Y N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="checkbox"/> Y N	<u>AS2M A29</u>
CORRECT THICKNESS	<input checked="" type="checkbox"/> Y N	
PHOTO REQUIRED	Y <input checked="" type="checkbox"/> N	
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/> Y N	<u>100794397</u>
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/> Y N	
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/> Y N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y <input checked="" type="checkbox"/> N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y <input checked="" type="checkbox"/> N	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>AS</u> DATE: <u>18/11/08</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in